

# **Operating Manual**

## **Ethernet to Parallel Adapter**

**Revised July 1, 2004**

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## Introduction

Thank you for buying SBIG's Ethernet to Parallel Adapter (E2P or EPA). This accessory allows you to talk to your Parallel Port based SBIG Camera (ST-7, ST-8, etc.) over an Ethernet network. This makes it easy to talk to a camera in your backyard observatory from the comfort of your house. While the Parallel Ports of most computers can be extended to 50 feet and possibly further, Ethernet cables on networks can be hundreds of feet in length. The E2P adapter works with SBIG's drivers and applications based upon those drivers running on Microsoft Windows, Macintosh OSX and Linux.

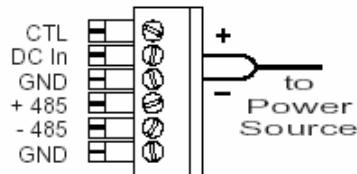
### What's Included

SBIG's Ethernet to Parallel Adapter consists of the following items:



- Ethernet to Parallel Adapter Box
- US 12VDC @ 400ma Wall Transformer
- Serial Cable for Setup
- Ethernet Patch Cable
- Floppy Diskette with Setup Utilities
- CCDOPS Version 5 Camera Control Software

Users in areas without 110V power will need to substitute an appropriate wall transformer or power source. The power requirements for the Ethernet to Parallel Adapter Box are 9 to 34 Volts DC at 2 Watts ( 225ma @ 9V, etc). Simply unscrew the Wall Transformer from the power connector on the back of the unit and attach the alternate power source, noting the proper polarity:



## Setup

When you first receive the Ethernet to Parallel Adapter box you must install the software and the unit must be setup to your particular network configuration. This section details what is required to start using the accessory.

### Installing the Windows Software

If installing on a Windows 2000 or XP machine make sure you are logged in as the administrator first. You'll need to install SBIGs drivers and CCDOps software from the "SBIG Software and Catalog" CD-ROM as described below:

- Insert the CD ROM into your CD drive. If a menu program doesn't start automatically run the **autorun.exe** program from the CD.
- Click the **Setup a New Camera** button.
- Follow the on-screen instructions to install CCDOps and the SBIG Drivers.

**Note:** If you can't run the **autorun.exe** program or want to manually install the software run the installers from the **CCDOps** and **Driver Checker** folders of the CD-Rom and don't forget to click the **Update** button in the Driver Checker to install the drivers.

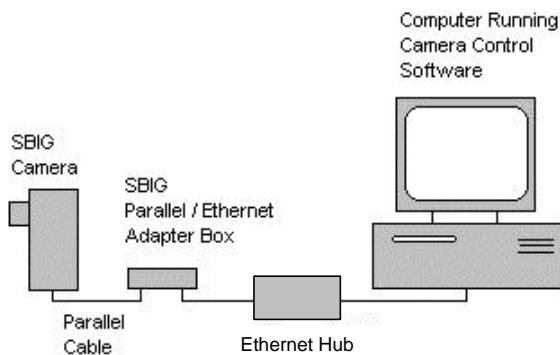
### Running with Mac OSX or Linux based Software

Follow the separate instructions for installing the SBIG Drivers and application software for your Mac OSX or Linux based systems.

### Powering up the Unit

The typical installation of the Ethernet to Parallel Adapter (EPA) will involve connecting the accessory to a free port on a hub on your Ethernet network as shown in the diagram below. Please note the following regarding this accessory:

- The Ethernet patch cable provided with the unit is meant to connect the EPA to a hub. If you want to connect the EPA directly to an Ethernet adapter in your computer without going through a hub you'll need to obtain a "crossover" cable and use that to connect between the computer and the EPA.
- The SBIG Ethernet to Parallel Adapter is a 10 Base-T appliance but will work fine on Auto-sense Ports of 100 Base-T hubs.



## SBIG Ethernet to Parallel Adapter Operating Manual

Power up the unit by plugging in the power supply and connect the EPA to the network with the Ethernet Patch Cable. The **PWR** LED on the front panel should illuminate indicating power to the unit and the **LINK** LED should illuminate indicating the connection to the live Ethernet network. If the **LINK** LED is not illuminated it's probably because you have connected directly to your computers Ethernet Adapter and did not use a crossover cable. Also the **ACT** LED may blink with Ethernet activity.

### **Ethernet Configuration**

As the Ethernet to Parallel Adapter is an Ethernet Appliance it may need to be configured for operation on your network. From the factory the Ethernet to Parallel Appliance is configured as IP address **192.168.0.99**. Changing the IP address is done using a serial cable and terminal program like the Windows **Hyper Terminal** application. Before we start that though you'll need to obtain the following IP address information:

**IP Address of the EPA** – This is the IP address you will assign to the EPA (the factory configured address is 192.168.0.99). It needs to be an IP address on your local network that is unassigned to any other devices. Typical installations include:

*I access the Internet using a dial-up modem or I don't have a local network* - In this case you need to assign an IP address to both your PC and the EPA. A typical setup would be to set your PC to **192.168.0.1** and the EPA to **192.168.0.2**.

*I access the Internet using a Cable Modem or DSL Modem* – In this case you either have a local network and need to assign an IP address for the EPA that is compatible with your network or you need to contact your Internet Service Provider (ISP) and ask them for which address you can use. You must pick a fixed IP address for the EPA even if your computers IP address is assigned dynamically by your ISP.

**Network Mask** – This is typically 255.255.255.0 for small in-home networks. For larger installations check with your Network Administrator.

**Gateway Address** – If you have a gateway on your local network that allows access to the internet you will need its IP address. If not just leave it blank.

For convenience write the values you have chosen in the spaces below:

PC IP Address: \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

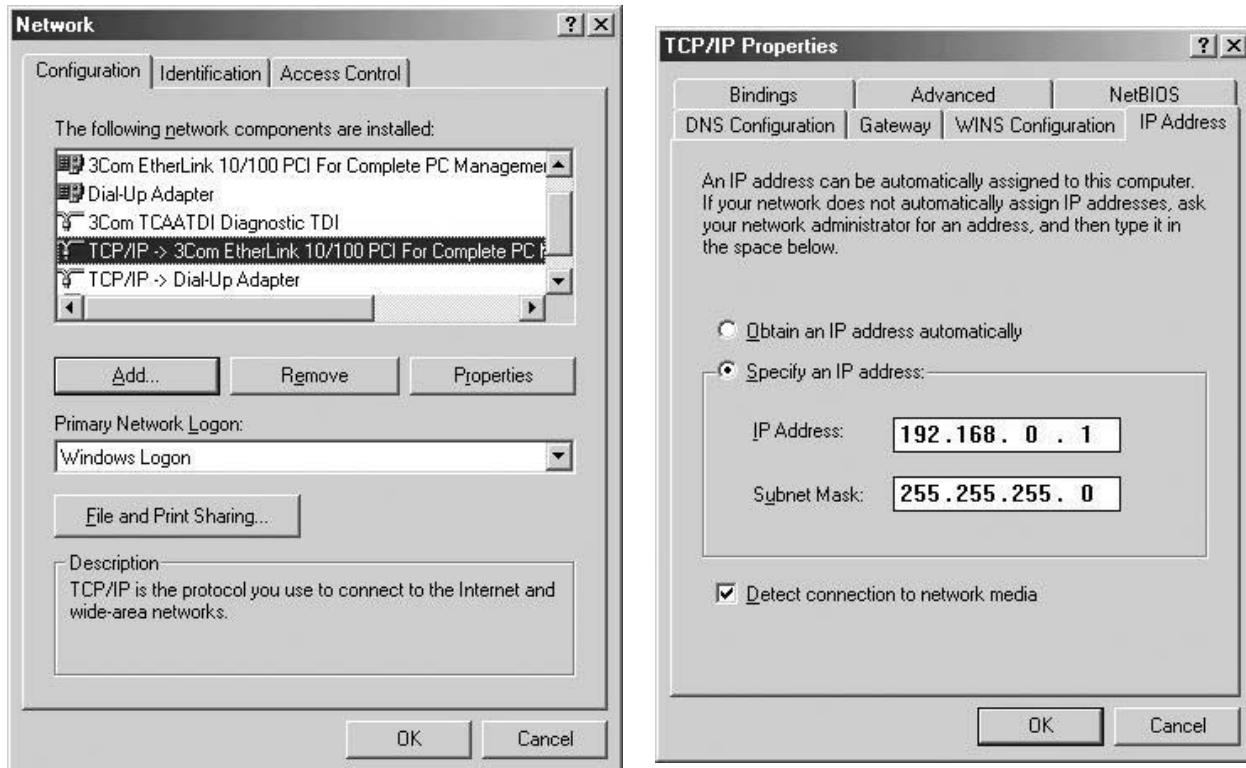
EPA IP Address: \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

Network Mask: \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

Gateway Address: \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

If you need to assign an IP address to your PC (actually the TCP/IP Protocol of your Ethernet Adapter) use the Network Control panel as shown below:

## SBIG Ethernet to Parallel Adapter Operating Manual



Now let's use the Hyper Terminal application to configure the Ethernet to Parallel Adapter:

1. Double-click to open the “Direct to COM 1” setup file in the E2PUTILS sub-directory of the install directory or run the **Hyper Terminal** application from your Start Menu -> Programs -> Accessories -> Communications and configure Hyper Terminal for COM 1, 9600 Baud, 1 Stop Bit, No parity and Hardware or None Flow Control.
2. Connect the provided serial cable between your PCs COM 1 port and the Ethernet to Parallel Adapters Console port.
3. Hit the Reset button on the EPA and you will see text start to scroll across the Hyper Terminal screen. While the text is still scrolling hit the Space Bar on your PC. This stops the EPA from running the Server Program and allows configuring the unit. If you don't see a “B:>” prompt<sup>1</sup> as the last line on the screen hit the reset button again then hit the Space Bar.
4. At the “B:>” prompt type CONFIG then hit enter. The CONFIG program will ask you for the IP address, subnet-mask and gateway address as we discussed above. Enter the values you determined above. The CONFIG program may also ask for the Primary and Secondary Name Server addresses. You can simply hit the enter key there. If you make a data entry error you can rerun the CONFIG program.

<sup>1</sup> Does the “B:>” prompt from the EPA remind you of MS-DOS? It should because the EPA is actually a micro version of a PC computer running an embedded version of DOS.

5. At this point the EPA needs to be rebooted by hitting the Reset switch on its front panel. You can quit Hyper Terminal and put the diskette away. If you ever move the Ethernet to Parallel Adapter to a different Network or change your Network configuration you will need to reconfigure the unit as described in this section.

At this point you can connect the camera to the EPA using your parallel cable that came with the camera and power-up the camera.

## Using the Ethernet to Parallel Adapter with CCDOPS

Run CCDOPS from the install directory and use the *Graphics/Comm Setup* item in the *Misc* menu. Select *Ethernet* in the Interface pop-up item then fill in the EPA's IP address in the *Ethernet Address* field. Hit OK then use the *Establish Com Link* item in the *Camera* menu. In a few seconds the CCDOPS software should establish a link to the camera as shown in the *Link* field in the lower-right corner of the CCDOPS main window. That's all there is to it. You can now use CCDOPS just as if your camera were connected to the parallel port.

If you are not able to establish a link try the following trouble-shooting guide:

- Make sure you are using CCDOPS Version 5 or later (with the Gold Icon, not the Black Icon) or that the third party software you are using supports the Ethernet to Parallel Adapter.
- Make sure that the Ethernet to Parallel Adapter is plugged in and that the **PWR** LED is illuminated.
- Make sure that the EPA is plugged into the network, the hub is powered up and the **LNK** LED on the EPA is illuminated.
- Make sure the camera is connected to the EPA and is powered up. If necessary try connecting the camera to the PCs parallel port and establishing a link there to make sure it is working correctly. Don't forget to use the *Graphics/Comm Setup* command to reconfigure CCDOPS for the LPT port and then back to the Ethernet port.
- Check the settings you have used for the EPAs IP address, sub-net mask and Gateway address. When the unit is powered up and connected to the network you should be able to ping the EPA using the DOS ping program. When pinging the unit the **ACT** LED on the EPA should momentarily illuminate.